



HOW CAST IRON STARTER FITTINGS DELIVER TIME AND LABOR SAVINGS

CHARLOTTE
PIPE AND FOUNDRY COMPANY

The effectiveness of starter fittings lies in their capacity to combine several components into a unified whole — ensuring faster, simpler installations.

Exploring the Benefits of Cast Iron Starter Fittings in Multi-Story Construction

The growth of American cities continues to increase demand for multifamily housing and high-rise buildings such as apartments and condominiums. Taller buildings help accommodate more residents in less land area, but they also require robust, reliable plumbing systems that support high volumes of use.

Vertical cast iron starter fittings, developed to save on installation labor costs in multi-story construction, are a key component in these modern plumbing systems.

Cast iron starter fittings create one fitting to be used as the starting point for the bathroom drain, waste, and vent system by picking up all fixtures when the layout is repeated on consecutive floors. Each cast iron starter fitting replaces three or more separate pipe components, providing plumbing contractors with an efficient and sensible solution to high-rise DWV installation.

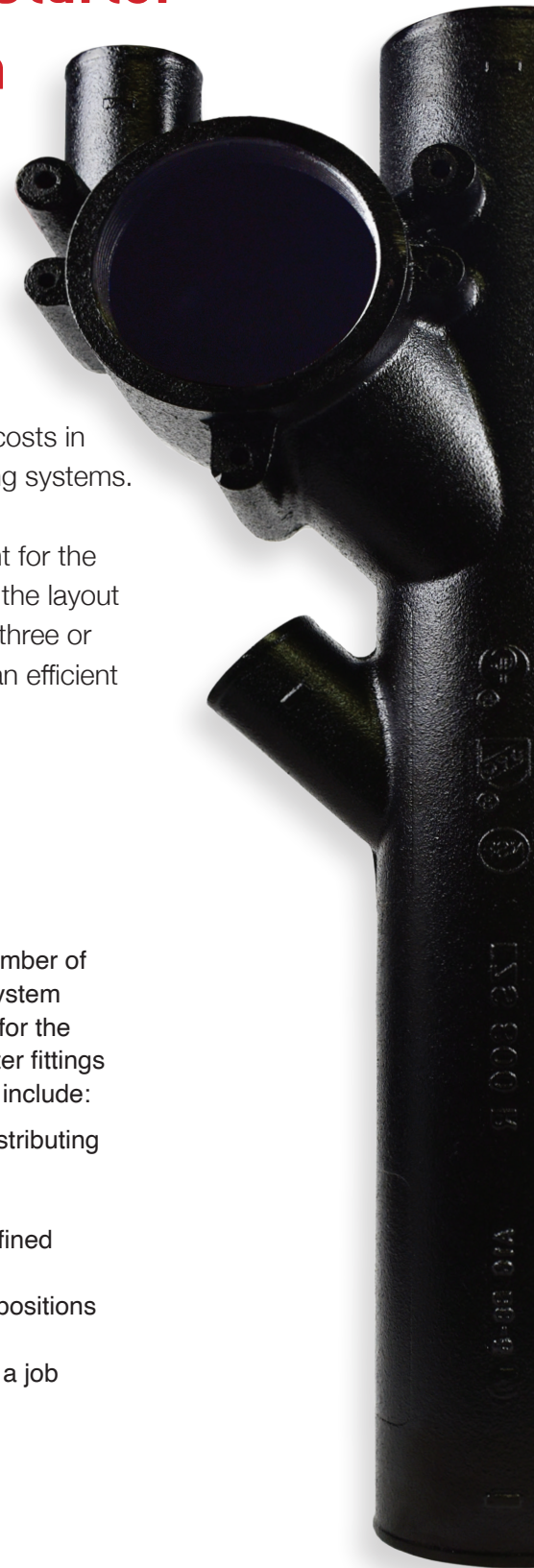
Simplifying Urban Plumbing Systems

Modern cast iron starter fittings are manufactured to help simplify sanitary waste drainage in high-rise construction. Originally available only for above-the-floor applications, starter fittings are now available for use above, below, or in the floor. In addition, they can be used in conjunction with back outlet floor or back outlet wall-mounted water closets.

Although designed primarily for water closet connections, these fittings have diverse configurations that allow for easy installation of lavatory, shower, and tub drain lines for almost any bathroom layout.

In addition to reducing the total number of fittings in a multi-story plumbing system and helping maximize profitability for the installing contractor, cast iron starter fittings provide numerous benefits, which include:

- Minimizing the complexity of distributing fittings on a jobsite
- Reducing the number of joints
- Providing a better fit within confined plumbing walls
- Offering diverse vent and inlet positions to meet specific building needs
- Improving the overall quality of a job



Types of Cast Iron Starter Fittings

While cast iron starter fittings were originally available in only hub-and-spigot configurations, today, manufacturers such as Charlotte Pipe and Foundry offer both hubless and hub-and-spigot starter fittings.

- Hub-and-spigot starter fittings are designed with both hubbed and tapped inlets.
- Hubless fittings do not have hubs and are available with tapped inlets as well as inlets that are joined to pipe using hubless couplings. These fittings are available in right-hand, left-hand, and double configurations.

Understanding Hubless Fittings

Right- and left-hand hubless fittings are single-starter fittings and refer to the position of the water closet inlet. These fittings are designed for single bathrooms in floor plans that are repeated vertically.

Double-starter fittings are designed for floor plans where back-to-back bathrooms are planned and repeated from floor to floor. These fittings are typically equipped with a baffle, or a partition, to prevent any backflushing in the adjacent water closet.



Did you know?

Unlike conventional plastic pipe installations, cast iron starter fittings do not require additional time for setting and curing.

Three Advantages of Cast Iron Starter Fittings

Installation requirements for starter fittings vary substantially based on project, market, and application type. To ensure application integrity, following the specific installation criteria is vital.

Contractors servicing major metropolitan hubs — including New York and Chicago — have become accustomed to using cast iron starter fittings. Nevertheless, the advantages they offer can be tapped in any region.

1. Fewer Fittings Means Lower Material Costs

A starter fitting combines several different fittings into a single, compact cast iron fitting. This streamlined design results in fewer fittings and joints.

As noted in **Figure 1**, a typical starter fitting consists of a fixture fitting, a sanitary tee, a wye, and a section of pipe. In the case of hubless cast iron starter fittings, each of these joints also requires the use of a hubless coupling. In this application, the contractor's material and labor costs can add up quickly.

The fact that cast iron starter fittings eliminate an exorbitant number of fittings in high-rise construction also translates into substantially fewer joints when compared to conventional DWV systems. And fewer joints in a system means fewer opportunities for problems.

The Benefits of a Noncombustible Material

Also, because cast iron pipe and fittings are defined as noncombustible per ASTM E136, Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750° C, fire compartment penetrations typically only have to be sealed back to their original integrity with the use of a fire caulk. And because cast iron plumbing systems do not sustain combustion, they can be used within return-air plenum areas without restrictions.

On the other hand, when combustible piping systems such as PVC pipe penetrate fire-rated assemblies, listed fire-stop devices or collars are normally required to be installed around the PVC pipe on both sides of the fire-rated wall.

Figure 1.



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The Savings Add Up

Explore how you can cut material costs, reduce labor, and save time with cast iron starter fittings in high-rise buildings.

Installing the plumbing system for 600 bathrooms:



Material Savings

Save on 1,800 couplings by using cast iron starter fittings



Labor Savings

Save significant labor with 1,800 fewer joints to make



Time Savings

Install 1,200 fewer fittings, reducing time spent on installation



2. Faster, More Efficient Installation

Although at first glance it seems complicated, most contractors will agree that the use of starter fittings on multifamily residential projects is actually quite simple.

In some markets, plumbing contractors use starter fittings that are designed for installation in the floor. These installations typically require slab penetrations to be boxed out to accommodate the starter fittings. This method reduces or eliminates any core drilling through the slab.

Although starter fittings are designed to be installed in line with the main soil stack, the positioning of the inlets and the vent direct the entire bathroom installation. As shown in **Figure 2**, these installations are repeated from floor to floor, making installation easier for the contractor.

In addition, while conventional plastic installations require time for both setting and curing, cast iron systems in general — and starter fittings specifically — do not. For example, if 4-inch PVC is installed in 38 F at 60% relative humidity, it could take as long as two days for the joint to fully cure before the system can be tested.

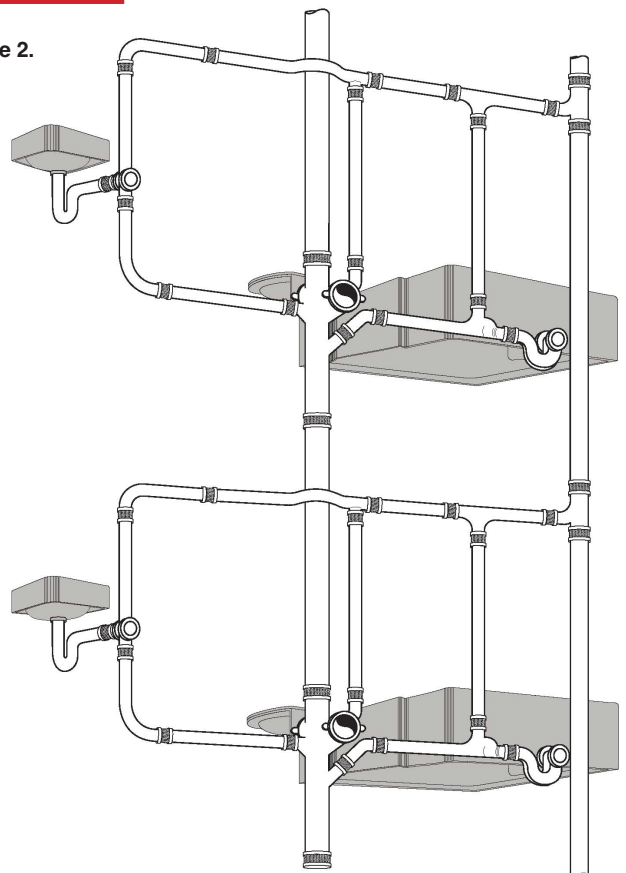
Cast iron systems incorporating the use of starter fittings can be tested immediately after the plumbing installation on the floor is complete.



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Figure 2.



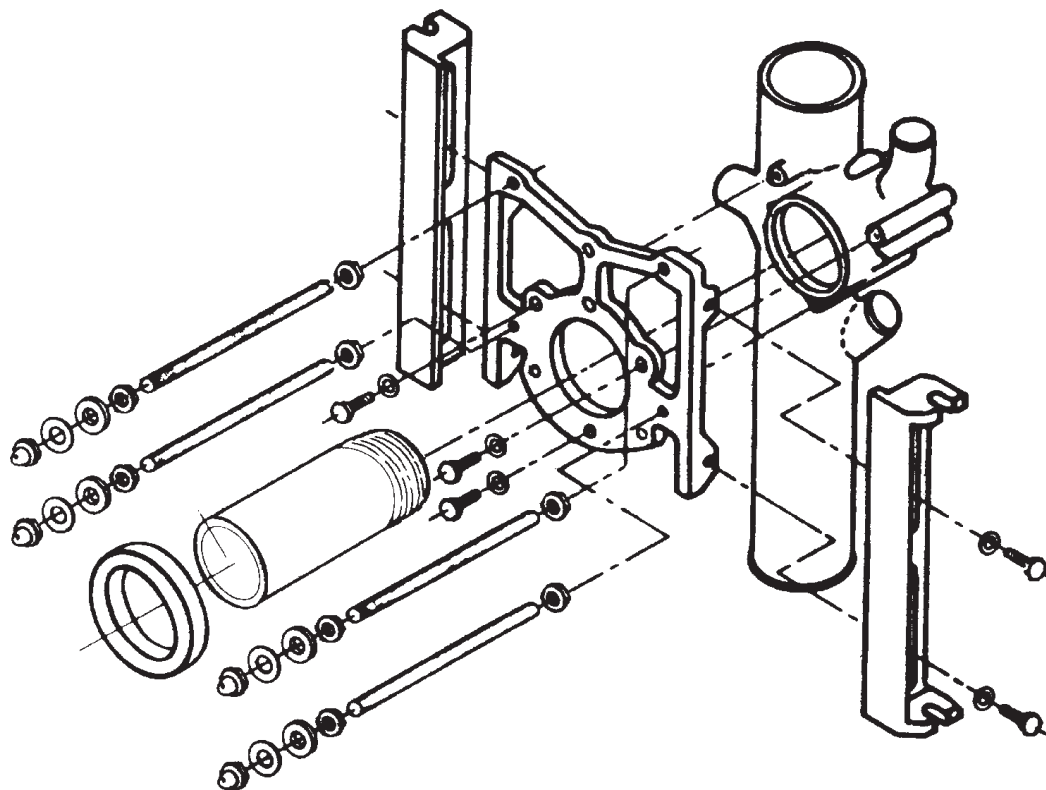


Figure 3.

Supporting the starter fittings is rather simple as well. Starter fitting patterns that are designed for use in the floor are generally supported with riser clamps, while other configurations for use above the floor require the use of a support frame and trim package. These support frames are normally adjustable and bolt directly to the starter fitting.

As detailed in **Figure 3**, trim packages consist of a bowl gasket, a threaded nipple, and thread rods. Thread rod size is dependent on the intended application. The trim packages offered by most manufacturers are tailored to two different applications:

1. Wall-hung back outlet
2. Floor-mounted back outlet water closet assemblies

Today, many contractors preassemble as much of the installation as possible before the materials arrive at the jobsite. Through the use of prefabrication, distribution complexity is minimized since each installation can be crated up, set in place via cranes, and then quickly roughed in.

A major advantage to using starter fittings in high-rise construction is that, compared to conventional fittings, they more readily fit this prefabrication process. At a minimum, the repetitive installation design makes it easy to precut pipe for soil stacks and vent stacks, allowing assemblies to be quickly installed at the jobsite with minimum labor.



Did you know?

Louis XIV had cast iron pipe installed at the Palace of Versailles in 1664. More than 350 years later, the pipe is still in use.

3. Engineered for Tight Spaces

Space requirements have long been a concern of plumbing engineers and designers in any project, but exponentially so in high-rise construction. Today, engineers and designers use a variety of ways to maximize square footage. Unfortunately, most approaches do not leave a lot of room for contractors to install plumbing within the walls.

Starter fittings provide the functionality of conventional plumbing but in a compact design that uses less space between walls or in the slab. Although this may vary depending on the manufacturer, some left- or right-hand hubless starter fittings installed with a support frame are less than 8 inches in width.

In addition, as seen in **Figure 4**, the height of some vertical starter fittings is reduced significantly compared to conventional fittings to accommodate the positioning of the inlets in relation to the slab on each floor. This equates to a building that has more usable, livable, and functional space.

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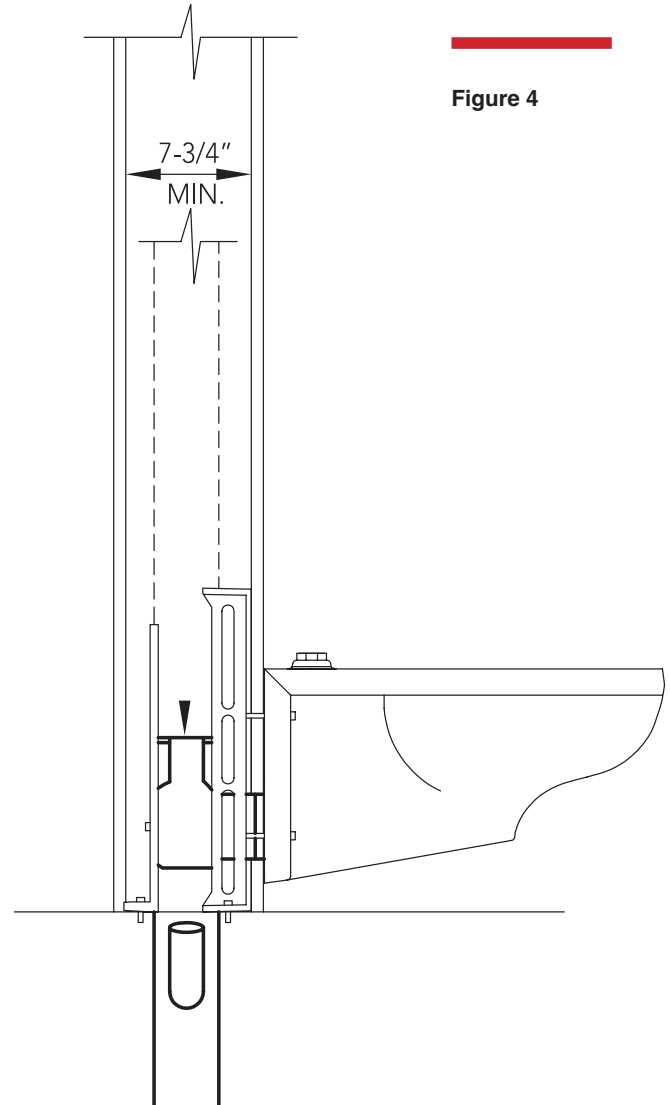


Figure 4



A More Sustainable Option

Starter fittings and cast iron pipe are manufactured from at least **96% postconsumer recycled material** and are **100% recyclable**.

The Quiet Pipe® USA CHARLOTTE PIPE

The Quiet Pipe®

The density of cast iron makes for a remarkably quiet system, which is an important quality for any multifamily, high-rise project.

Cast Iron Starter Fittings: Adding Value to Multi-Story Construction Projects

Cast iron pipe and fittings have been used in nonpressure sanitary and storm drainage applications for centuries. Today, they are still widely regarded as the premier material choice due to their durability.

While many starter fitting patterns have remained unchanged over the years, innovations in high-rise construction have inevitably brought about some changes in today's product offerings. This includes the impact of value engineering.

On the surface, value engineering is a sound process for measuring the value of a given material or feature.

When value is defined as the ratio of function to cost, there are two ways to increase value: by improving the function or by reducing the cost. Rarely, if ever, is there a chance to improve function at a reduced cost. Cast iron starter fittings, however, present plumbing contractors with this opportunity.

What could be more functional than combining three fittings, three couplings, and a piece of pipe into a single fitting? Furthermore, starter fittings have a lower total installed cost due to the material and labor savings they present — without sacrificing functionality or quality.

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Both hubless and hub-and-spigot starter fitting configurations provide silent, reliable service. Installation of these fittings coupled with thoughtful plumbing design will reduce the total number of fittings and joints. Starter fittings also minimize the complexity of distributing fittings on a jobsite, fit better within confined plumbing walls, and improve the overall quality of a project.

These factors save contractors both time and money associated with procurement and installation. Ultimately, this maximizes the profitability of the plumbing contractors who wisely choose cast iron starter fittings for their multi-story projects.



Scan the QR code to download **Charlotte Pipe's Cast Iron Fitting Products for Multi-Story Applications Guide and Dimensional Catalog.**